

THE MUTUAL INTEREST OF THE MEDICAL
PROFESSION AND INSURANCE COMPA-
NIES IN THE PROLONGATION OF LIFE.¹

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This is a new inquiry, seeking to bring into better harmony and successful co-operation two great institutions, *i.e.*, scientific medicine and life insurance business. Those satisfied with what is already the rule will oppose with the argument, *cui bono?* the two callings are wholly distinct and entirely sufficient as they are. The argument is both fallacious and deceptive, besides being useless.

We, the medical profession, are not and do not pretend to be perfect. We are simply on the road to perfection, constantly passing many things by the way with regretted and unregretted, if unknown, ignorance of their real nature.

If Lawson Tait had any reason to make the statement attributed to him, that "that man would be rash who would make a positive diagnosis of any given condition within the abdominal cavity," then certainly every physician must appreciate the equal necessity of the largest possible array of evidence of disease within the thorax in order to reach any positive conclusion. Time is evidence, and memory is unreliable, hence the great need of the systematic recording of the evidence in chronic cases. A complete diagnosis may be so difficult that it requires to be something more than "physical," and the physician needs all his own intuition, historical information and side aids, as the microscope, to come to a definite conclusion.

We know so very little of the *pretubercular stage* for instance, that indefinite, indefinable condition of the body solids or fluids, before the *bacillus of tubercle* "lives, moves and has its being."

And as to life insurance, it can not boast of any greater completeness than the medical profession, unless on the understanding that insurance is nothing more than taking chances on those who will die in favor of those who survive. Life insurance had practically no existence previous to 200 years ago, when Pascal, a Jesuit priest, being appealed to to divide the stakes in a game of chance, in doing so figured out the "doctrine of probabilities," which has ever since been the basis of the life insurance business. But, as an institution interested in life, insurance is far from the attainment of its highest success. To appreciate the truth of this statement one has only to carefully peruse the diverse views as to "Modern Insurance and its Possibilities," in the March number of the *North American Review*, by prominent and distinguished presidents of American life companies. What a splendid conception of the "possibilities" of life insurance these excellent gentlemen would have had if they could have seen, in their mind's eyes, the harmonious picture of the coming life insurance president aiding and abetting the physician of the future in the prevention of disease and the prolongation of life! Strange as it may seem, in view of such well rewarded business sagacity, as these correspondents of the *North American Review*,

¹ Read before the Section of Medicine of the American Medical Association, June 7, 1893, at Milwaukee, Wis.

enjoy, it does not appear to have occurred to them to inquire how much it would have cost to stamp out a disease in preference to paying a bonus for those this given disease had slaughtered. Judging by the "possibilities" mentioned, the important question has not yet been entertained, namely, how 10 per cent. of health precaution and skillful, systematic and professional supervision of their risks might result in 30 to 60 per cent. pecuniary gain to the companies.

However, admitting that the life insurance company has thus far been an institution founded on money considerations only, we will at first strive to keep in the background the splendid humanitarian idea which underlies this present conception of its future possibilities. Then, when a broader and nobler course for the companies has been shown, not only to be comparatively inexpensive but very profitable considering the outlay, the beneficent purpose of prolonging life, the idea of benefits while living for the insured, as well as for his survivors after death, may be a substantial support to the more enlightened plan for life insurance's usefulness. Let it be distinctly understood that this is not a plea for the insurance of *invalid* risks. However, the time may come when the better understanding of the classification and varying longevities of invalids may lead to a knowledge of their insurability. No, it is the care and improvement of the risks the companies have already taken which are prominent objects of this paper.

There is undoubtedly a considerable mortality rate, which, because of deaths by accident or acute diseases, is diverted from the ratio that would otherwise belong to the consumptive class. Besides medical officers are making particular efforts to shut out this one disease by skillful selection, and by the exclusion of heredity. Notwithstanding these influences there are deaths enough among the insured from tuberculosis alone, to warrant the reform hereafter suggested in this paper. If the other companies were as painstaking in the compilation of their mortuary statistics as the Mutual Life of New York has been, they too would learn something directly to the point and greatly to their benefit.

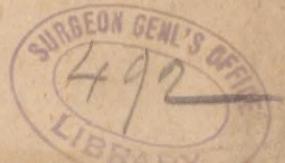
Namely, 1st: That, as to consumption, as early as the third year of insurance the companies have practically lost most of the advantage of their selection of risks. 2nd. That from the second to the tenth year of insurance the mortality they have to pay for averages 23 per cent. due to some form of tubercular disease. This is a fair inference from the following table, kindly furnished me by the medical department of the Mutual Life, taken from the mortuary records of the company for its first thirty years of experience:

TABLE XV.—Proportion of Consumptive Mortality to Total Mortality and to Years of Life Exposed.

Duration of Insurance.	Deaths from Consumption.	Percentage on Total Mortality.	No. of Deaths to 10,000 Years of Life Exposed.
1st year	57	10.67	7
2d "	117	20.07	17
3d "	133	24.19	21
4th "	143	25.49	25
5th "	116	23.73	24
6th to 10th year.	298	22.70	28
Above 10 years..	168	14.83	23

The above are not strained estimates, but probably underestimates for all companies; for that the Mu-

presented by the author



tual Life is a carefully managed company in its medical department is either plainly shown by the following table, obtained from the same source, or else the more numerous consumptives among the beer drinking Germans hang on to life much longer, than the consumptives in our healthier yet faster-living America:

TABLE VIII.—Showing the Annual Number of Deaths from Consumption Among 10,000 Insured at Each Quinquennial Period of Life.
PROPORTION OF DEATHS FROM CONSUMPTION TO EVERY 10,000 INSURED.

Age.	Mutual Life Insurance Co.	12 German Life Insurance Co's.
21 to 25 years	23	19
26 to 30 "	23	39
31 to 35 "	22	42
36 to 40 "	17	37
41 to 45 "	17	30
46 to 50 "	16	38
51 to 55 "	15	35
56 to 60 "	16	32
61 and upwards	18	32
All ages	18.6	35.7

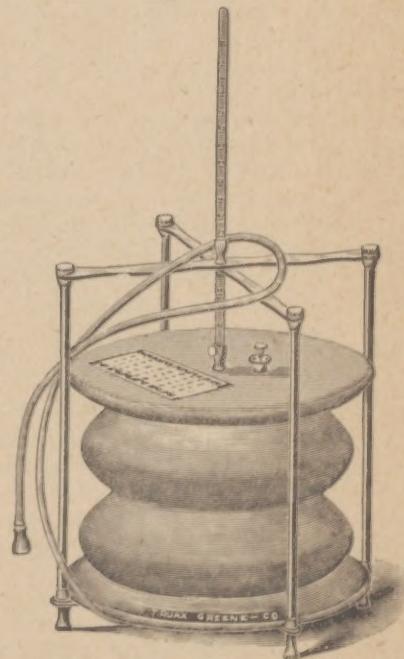
NOTE.—It should be borne in mind that the above table is influenced by the younger life which obtains in a company's experience during the first 30 years of its existence.

What is needed is a similar computation up to date of the mortality experience of all the companies, not only like the above two tables, but also another giving the ratio of deaths in this class to all deaths for each year's age of policy.

Then in comparison with general mortality statistics, obtained without reference to insurance, the companies would know two important facts; *first*, the quality of work their agents and physicians are doing for them; *second*, the great importance and tremendous expense of the consumptive class on their lists. They would incidentally learn the great value to the companies of climatic change and close supervision or individualization in these cases. This needed list should comprise deaths from consumption, fibroid phthisis, chronic pneumonia, chronic pleurisy and bronchitis, tuberculosis, asthma, scrofula, "wasting" etc. My experience, in an effort to get these data from the companies, is that they haven't them, or if they have they are not of such a nature as to be given to the public. Of course we must admit a certain untrustworthiness of mortality statistics, the insidious and usually complicated existence of tuberculosis furnishing one excuse for a flexible estimate, but broadly it can be stated that the cost in death losses paid by life companies, in the past fifty years, has been between \$350,000,000 and \$600,000,000. In view of the importance of this consumptive class to the company's welfare, and the, to me, undoubted fact that latent tuberculosis is at the bottom of more failures in health than that subtle condition ever was credited with, I recommend to medical directors of life insurance more exact and systematic safeguards against the entrance of such impaired lives on an equal footing with selected healthy risks. There is not time and so it is not here my purpose to fully discuss the intimate relations which should always exist between the medical director and the medical examiner of a life insurance company. The confidence which is reposed in these two by the unprofessional officials of the company is as yet insufficient to offset the excessive interest the agent has to insure anybody regardless of risk, or the desire of many applicants to be rated higher than their physical condition fairly warrants. In a carefully constructed entrance examination paper, among the physical conditions required to be stated, I think the spirometrical and manometer record

of the applicant should be included. Then, if either or both are below a given fair standard, (say 25 or 30 per cent. below) for the applicant's height, sex, age, etc., the exposure of the applicant's chest and the taking of the semi-circumferential measurements of the two sides, should in all cases be required. By these measurements the following will be shown: First. If an unnatural difference in the respiration movements of the two sides of the thorax has to explain, by inference, a deficient spirometrical record, with manometer record normal for that person, then surely that inference is toward *fibrosis* or *pleuritic adhesions* and perhaps *latent tuberculosis*. Second. If, with similar variation in movement, a marked deficiency in manometer record has to be explained, the spirometrical record being all right, then the inference is to a *positive weakness*, which must influence the applicant's vitality. Third. If, however, deficiency below a standard of health both in the spirometrical and manometer record of an individual, can or can not be accounted for in deficient movement of one or both sides, there is then a *suspicion of weakness*, to possibly elucidate which a more careful investigation is needed before accepting the risk.

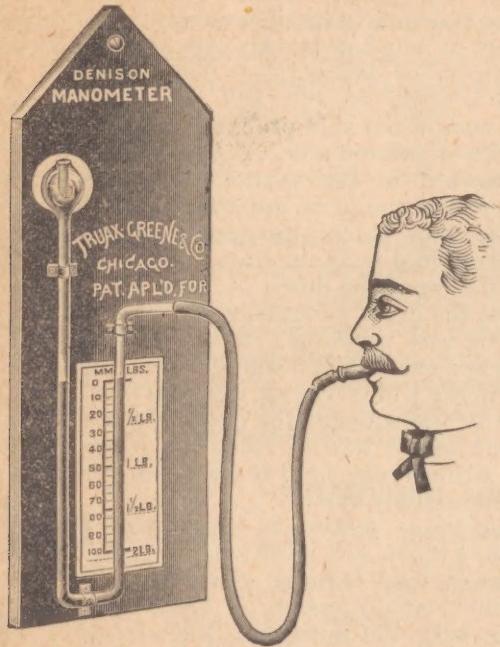
Gentlemen, these are new points for life insurance examinations which I believe I have the honor to present for the first time. Whether their observance will shut out 10 or 20 per cent. of the consumptive mortality, which is now borne by the companies, I do not know, but I am sure they will account for many doubtful cases not usually made plain by an ordinary physical examination. These rules are the outgrowth of my personal investigations with the spirometer and manometer, samples of which are here presented as made for me by Messrs. Truax, Greene & Co. of Chicago.



DENNISON'S SPIROMETER.

In the winter and spring of 1873, when, after pulmonary hemorrhages, night sweats, etc., I was myself health seeking in San Antonio, Texas, I met Dr. M. Slocum, a physician whose experience so well illustrates a plan I had already conceived that I will here relate his case: Some sixteen years before this time of my meeting Dr. Slocum he found himself a health

seeker in San Antonio, Texas, two years after his wife had died of consumption in New Orleans. For her health he had moved from the North to the South. Whether his was a case of infection or not I am not certain; but he was really in a serious condition, emaciated and having several hemorrhages in the streets of San Antonio, excited even by the effort of walking a block. He was also broken in finances, and naturally thought of utilizing the then present value, to the company carrying it, of his life insurance. He had a \$5,000 policy on his own life in his wife's favor. I believe this was either in



a New York or New England company. Three of the best physicians in San Antonio critically examined him and made a written report of the facts, recommending to the company to pay Slocum at least 50 per cent. of his policy for its surrender. The company sought to parley with their man, and offered him \$1,500. That was worth a thousand times as much to him living as to him dead, and he accepted the offer quickly, the more so as the indications were even then apparent of a disruption between the North and the South. He took this money and resolved that he would not go inside a house for six months, and kept his resolve. My oldest brother, then a resident of San Antonio, used to go out to Slocum's tent on the prairie to play chess with him under the mesquite bushes. Well, sixteen years afterward, when I met the doctor, he was clerk and recorder of Bexar county, a hale and hearty man of 160 lbs. weight, though his voice was yet husky and he relied considerably on stimulants.

It can almost truthfully be said it is not consumption that kills, but worry. The money the life insurance company sent saved that man's life. The officers of the company made a good bargain, and they need not reproach themselves because they did not hold on to that policy in order to save the over \$20,000 which, in value to them, it would have amounted to if it had been kept in full force up to the time Dr. Slocum eventually died, about twenty-five years from the time the company made the settlement with him.

Was it not perfectly natural for me to ask, if this

much good thus came to this man, why not to all insured under similar circumstances? Might I not have been insured myself, and the medical fraternity of my then home, Hartford, Conn., justly conclude that a hundred, such as I then was, would average to live not over three years, *i.e.*, to remain in the Connecticut valley. Now, twenty years afterward, when a policy on my life would have more than trippled itself in value, I survive and am permitted to disturb the contented insurance man with these vexing conundrums!

The country of southwestern Texas, New Mexico, Arizona, Southern California and Colorado is full of illustrations of this kind, so that it would be possible to assert with approximate accuracy, that classes of tubercular invalids who would have averaged to live two to four years, in their Eastern homes, have already lived from five to fifteen years in their newly chosen residences. The significance of this is plain enough when one considers that a prolongation of life nine years for a man of forty, doubles the value of his policy to the company holding it, through the incoming premiums and the use of the money which would otherwise have been paid out because of his death.

Twenty years ago I hoped to be able to present the exact data that would serve as a basis of this life prolongation, *i.e.*, a *classified table of climates and classes of invalids*, together with the different longevities of these invalids, residing thereafter in the several climates. But over 3,000 physicians, carefully selected by prominent medical friends to represent the whole United States and Canada, to whom my circular of inquiries was then sent, had not the requisite uniformity of mental training, nor habits of studying or recording disease, to make their combined replies of real value. There was not then, and there is not yet among medical men, enough system of disease investigation nor uniform expertness in diagnosis to formulate a *table of disease longevities*. There is knowledge enough of both climate and consumption within the great body of medical men, but it is so often nullified by individual peculiarities, experiences and environment, that collectively it is practically valueless. Success must come largely from individual effort and proficiency. This conclusion brings us to the most important and final part of my paper. The remedy for professional incompetency lies in some appropriate system, and a better familiarity with every diagnostic means. The system which I here present may not be the one in all its features which will be eventually endorsed by the medical profession as the best, but it is very much better than none at all.

"The Chest Diagnosis Chart and aid to climate selection," which is the main feature of this plan is the outgrowth of much study. By a two years' use it has enlisted my confidence. It tends to avoid the omission of any important part of a critical clinical or physical examination. It stimulates accuracy in defining and graphically illustrating thoracic disease. It favors an earlier detection of enfeebled or diseased states, through this accurate association of changed physical conditions. It refreshes and strengthens the memory as to previous investigations of a given case. The chart has been submitted for criticism and correction to some of the leading physicians in the United States, and very generally received their approval. The severest criticism is thought, by two distinguished physicians, to be the great difficulty in

getting the ordinary physician to go into the amount of detail required to properly fill out the document, and also his natural hesitancy to make any kind of an exact statement as to internal chest conditions. If this criticism is just, it is one of the greatest commendations the chart could receive. Accuracy and truth can nowhere be of more value than in regard to diseased conditions within the human body, and that means, be it a diagnosis chart or a professor of physical diagnosis in a medical school, which will teach the ordinary physician to know what he says and say what he knows, is a great blessing to humanity.

Let it be understood, if you like, that the practice of such innovations will hardly be established among the older men in the profession, who are almost unchangeably fixed in their ways of investigating and combating disease. It is the younger men in the profession whom I hope to gain as friends and collaborators in this new field. I would that every teacher of physical diagnosis in the land would do with their students as I have and shall hereafter do with mine; namely, drill them in this system of clinical research and physical diagnosis, and present them with copies enough of some such a chart as this that they will get into correct habits of recording their chronic cases at the start of their professional career. As to the too little interest among physicians to attend to the required detail, a knowledge on the part of the public of the benefits to result will bring a healthful demand for such services. However trivial, prolix or exacting an ordinary life insurance examination may be, the details are all attended to before the application is considered complete. This influence in favor of accuracy as to detail gives me the strongest hope for the chart's utility. What a wonderful educator of the medical profession such an agency would be, if adopted and generally utilized by all the great life insurance companies! All this increase of labor on the part of medical men would be in the direction of greater proficiency in the diagnosis and description of disease. Besides it would be productive of more uniform and correct information of the healing effects of different climates than obtains at present.

The chart is here presented for your inspection, with the directions for its ordinary and special uses printed on the first page. Besides its use for preserving a record in chronic pulmonary cases, directions are given for carrying on a consultation between widely separated physicians, and for an intelligent inquiry as to the suitableness of a given climatic change, before a suspected or known invalid undertakes a journey to a distant health resort. The plan I should like to see the life insurance companies adopt, and one I am sure they could afford to carry out with great credit and profit to themselves, is as follows:

Each company uses its own force of selected medical examiners, or if preferred designates a smaller force of physicians, skilled in physical diagnosis, to represent the principal centers where their policyholders reside. Besides these they designate their own *expert referee physician or physicians*; perhaps one specially skilled in the climatic treatment of respiratory diseases—at the headquarters of the company or elsewhere—or several such representing most prominent health sections of the country. The company then notifies all its policyholders that under specified premonitory or actual symptoms of disease, such as pulmonary hemorrhage, night sweats, pro-

gressive wasting of flesh, etc., they will send the chest diagnosis chart, have a critical inquiry made by their chosen local and referee physicians and return the written report and advice of these physicians for the policyholders' benefit and final decision. The company may do less, or even more than this much. One physician suggests that the company should have a reexamination of all their insured at stated periods; another that all impaired lives only need be so reexamined. The company, however, could well afford to promise to loan the insured a given per cent. (based on his disability), of the amount named in his policy at a small rate of interest, in case this aid was needed to help bear the expense of the advised change of climate or occupation. The applicant, with all these benefits so well and gratuitously furnished him, should not and probably would not refuse to obey the proffered advice. The company would reap the reward in the resulting prolongation of life. This return would be great for the outlay, according to how early in chronic lung affections the needed change would be inaugurated. The longer it is before the breaking down of lung tissue, the better. Hence the great advantage of an *early* inquiry like the one here proposed. If, as statistics prove that there are over 100,000 who die annually of consumption in the United States, and 200,000 who are already more or less affected for every 100,000 who die, the proposition is how to reach the new cases so that they will average eight to ten years of life thereafter, instead of only two.

The whole matter is now presented in a form which, I trust, will meet your approval, and coming to public light through you, representative men of the medical profession, is freely and unreservedly given, with the hope that this method of recording cases, and this beneficent plan for life companies, will receive your hearty endorsement.

In conclusion, I crave your indulgence for this fragmentary treatment of so many questions, each of which is of importance enough for a separate thesis. This method of presentation seemed to be warranted by the mutual interdependence of these various interests.

I shall be gratified if even this much shall prove a help to those who will hereafter take up the work and more completely present and elaborate the different phases of this important subject.

[After the reading of the above, a committee of the Section of Medicine was proposed to "consider the suggestions embodied in the essay." This committee reported:

"That the adoption by the medical profession of a definite and comprehensive plan of recording, with explicit and accurate statement, the results of examinations of persons affected with chronic pulmonary disease, as proposed by Dr. Denison, is a consummation earnestly to be desired, encouraged and hoped for, since it would be conducive to the early recognition and to the prompt and effective treatment of such disease, and to a correct appreciation of its course and tendencies, besides affording the best possible basis of consultation between widely separated physicians."

The financial features, as to life insurance companies undertaking to aid their consumptive insured to seasonably profit by climatic change, etc., were advised "to be referred for their advancement to the physicians connected with each insurance company.]

THE CHEST DIAGNOSIS CHART.

AND AID TO CLIMATE SELECTION.

By CHARLES DENISON, A. M., M. D., DENVER, COLORADO, Professor of Diseases of the Chest, and of Climatology, University of Denver, Author of "The Rocky Mountain Health Resorts," "The Annual and Seasonal Climatic Maps of the United States," Etc.

The objects of this examination record are, first and chiefly—To afford the physician a suitable means of preserving the exact data of his examinations in chronic pulmonary cases, and incidentally to foster among physicians the habit of accurateness and thoroughness in physical diagnosis.

Second—To furnish a basis of intelligent correspondence between widely separated physicians when a consultation is desired.

Third—To insure success and prevent useless expenditure on the part of invalids journeying for health, by intelligently canvassing the whole subject beforehand by means of this chart, which is meant to be a physical photograph of a patient's real condition, presented for the judgment of a physician expert in such matters.

Fourth—To present to Life Insurance and Beneficiary Associations a means for the early detection of respiratory and other associated diseases largely controlled by climate and a basis for the prolongation of these lives at a time when a more or less complete restoration to health is quite possible.

That is, to furnish a critical inquiry—(a) By a competent Examining Physician at or near the patients home. (b) By a Microscopist, if the sputum is to be stained and examined. (c) By a Referee or Consulting Physician in a distant city or health resort.

While no restrictions are placed on the use of this chart or system by any invalid, yet the family physician is most likely to first conceive the idea of a necessary change; therefore, if the attending or family physician makes the first examination, it is preferable that the choice of Referee Physician, and the final acceptance of the plan proposed, be largely left to him. The Referee Physician, returns to the home physician (or to the patient, if so desired) his own written opinion, answers to questions, advice about living expenses, and such additional information, or published documents, (about climate, diet, exercise, etc.) as he thinks needed, and also if requested, this chart. Then the enquirer has all the available facts before him for his study, and for his own or his doctor's conclusions.

Additional Inquiries and Explanations.

(To be filled out by the patient or first examiner.)

The financial question—An important consideration is the ability of the enquirer to follow the advice which may be given. Under which head (1, 2, 3 or 4) is the patient to be classed?

1. Financially fully able and willing to live as required and devote himself to getting well,
2. Do what ever is best at moderate expense for one year or
3. After four months or sooner, if physically able, will be compelled to take up occupation. What outdoor work would he be willing to substitute?
4. Has no money and would be compelled immediately to depend upon his trade, herein stated, or upon for a livelihood.

If the patient prefers, he, or his physician for him, can state his preference as to the climatic change to be made, giving his reason therefore, whether financial, social, business or pleasure.

The life insurance problem, if it is to be considered, requires—1. Does the patient desire the insurance company interested in his longevity to investigate the needs of his case, and does he intend, as nearly as possible, to abide by the decision reached?

2. In what company or companies is the patient insured, giving age of policies and amounts?
3. Would the financial aid of a loan secured by this insurance be needed in order to carry out any recommended trial or adoption of a new climate or change of life from that existing at present?

The examination fees—In the original examination the fee for such a critical diagnosis should be \$5 to \$10 or more, according to the custom of the examiner in such cases; depending also upon whether or not a microscopic examination of the sputum is made. The final consultation fee, if the Referee Physician gives a full written report of his own opinion, etc., should also be \$10, which should accompany the request for consultation. Where, because of the limited circumstances of the applicant, the first examiner so requests, the fee of the Referee Physician may be considered as \$5, as also when only the decision of a single question is desired not involving a consultant's usual responsibilities.

THE CHART.

NOTE—In answering, those portions printed in light type can be written over; and all conditions are to be considered as NORMAL which are not otherwise specified, or elsewhere in the chart shown to be diseased.

Examination made by Dr. _____

P. O. Address, _____

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PATIENT'S HISTORY. Patient's name? _____ Present address _____ Former residence? _____

Age? _____ Occupation? _____ Married or single? _____ Height, ft? _____ In? _____

Inheritance to Consumption or what chronic ailment? _____

Does patient resemble father or mother more? _____ Exposure to infection, explain if any probable? _____

Condition of health or life previous to present illness? _____

Commencement, date and cause? _____

Times of severe sickness since then? _____

First appearance of night sweats when? _____ Blood spitting? _____ Profuse yellow expectoration? _____
(2 to 4 ounces in 24 hours.)

After occurrence of night sweats, when? _____ Blood spitting? _____ Profuse yellow expectoration? _____

When, if at all, did dyspnoea commence? _____

Weight (pounds) in health, at best, when was it? _____ At least since sickness, when? _____ Now? _____

Changes in Residence since sickness and what periods? _____

Effect of such change or treatment? _____

Has health been better winters or summers? _____

Any experience in high altitudes? _____

Accustomed to what systematic exercise? _____

Sputum—Color? _____ Approximate quantity per diem in ounces? _____ Bacilli present? _____

When examined and by whom? _____ Skin moist, dry or sallow? _____

Afternoon Hectic? _____ Cough? _____ Pain, where? _____ Hands or feet cold? _____

Bowels formerly? _____ Now? _____ Hemorrhoids or any rectal trouble? _____

Patient's habits. Smokes? _____ Chews? _____ Use of stimulants? _____ Can walk how far without resting? _____

Appetite? _____ Digestion? _____ Any previous avoidance of fatty food? _____ Sleep? _____

Pulse, sitting? _____ Respiration? _____ Temperature, F? _____ Time of day? _____ What daily range if known? _____

Spirometrical record, cu. in.? _____ Manometer M. M.? _____

Complications? _____ Nervous state? _____ Kidneys and bladder? _____ Liver? _____

Women—Menses? _____ Childbearing? _____ Female disease, etc.? _____

(Any history of rheumatism, constitutional taint, glands enlarged or ulcerated, skin disease, or unusual drain on patient's vitality, as previous sexual excesses, explained here or by separate letter as desired.)

PAST CLIMATIC EFFECT. Nose and Throat.—Describe, if they exist, any obstruction to nasal breathing and the cause? _____

Any Rhinitis? _____ Otitis? _____ Pharyngitis? _____

Laryngitis? _____ Aphonia? _____ Hoarseness? _____

Locality and extent of any ulcers, tubercular or adenoid growths, etc. _____

PHYSICAL EXAMINATION.

(Made on bare chest.)

Inspection—Emaciation?..... Irregularities?..... Depression?..... Clubbed fingers?.....

Mensuration—Circumference inspiration in inches?..... Expiration?.....

Movement—Measure of two sides—Right, inspiration?..... Expiration?..... Left, insp?..... Exp?.....

Heart—Normal?..... Murmurs?..... Size?.....

Lungs and Pleura.—Percussion, stethoscopic percussion and auscultation?

Draw lines from signs named to diseased areas, or indicate by marking these abbreviation letters over the diseased spots or at the ends of lines drawn outward from them. Also encircle excavations—approximate size.)

Vocal Frémítus increased—F. L.
Vocal Frémítus diminished—F. D.
Vocal Frémítus absent—F. A.
Dullness, slight—D.
Dullness, decided—D. D.
Flatness—F.

Tympanitic Resonance—T. R.

"Cracked metal" on stethoscopic percussion—C. M.

Hollow sound on same—H. S.

Cavity—C.

Honey-combed—H. C.

Bronchiectasis—Br.

Pleuritic Friction—P. F.

Pleuritic Adhesion—Ad.

Pleuritic Effusion—Ef.

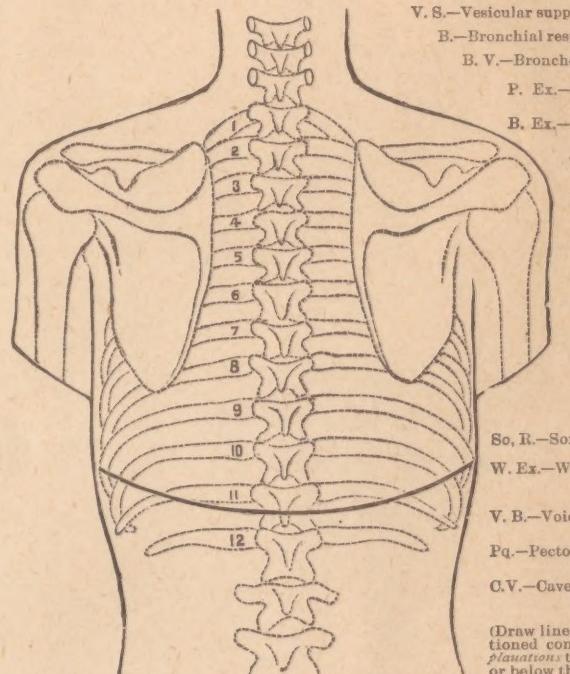
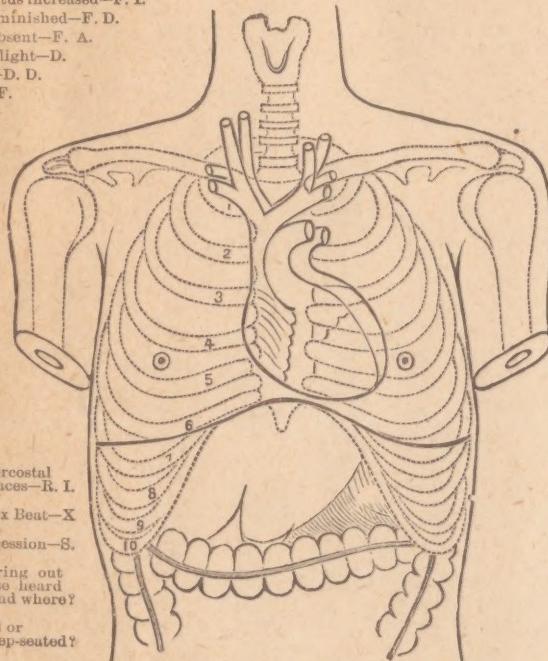
Retraction of Intercostal spaces—R. I.

Apex Beat—X

Succession—S.

Does coughing bring out rales not otherwise heard and where?

Are they superficial or deep-seated?



V. S.—Vesicular suppressed.

B.—Bronchial respiration,

B. V.—Broncho-Vesicular.

P. Ex.—Prolonged Expiration.

B. Ex.—Blowing Expiration.

C. B.—Cavernous Breathing.

G.W.R.—Cogged-wheel Respiration.

M. R.—Mucous Rales.

G. Gurgles.

C. R.—Crepitant Rales.

S.C.R.—Sub-Crepitant Rales.

Sib. R.—Sibilant Rales.

Sc. R.—Sonorous Rales.

W. Ex.—Whisper Exaggerated.

V. B.—Voice Bronchofonic.

Pq.—Pectoriloquy.

C.V.—Cavernous Voice.

(Draw lines to any unmentioned condition from explanations to be added above or below these diagrams.)

Diagnosis:

Treatment, climatic change recommended, etc.

